

Palo Verde Mesa Groundwater Basin

- Groundwater Basin Number: 7-39
- County: Imperial, Riverside
- Surface Area: 226,000 acres (353 square miles)

Basin Boundaries and Hydrology

This basin underlies Parker Valley in eastern Riverside County. The basin is bounded by nonwater-bearing rocks of the Big Maria and Little Maria Mountains on the north, of the McCoy and Mule Mountains on the west, of the Palo Verde Mesa on the east, and of the Palo Verde Mountains on the south (DWR 1979; Jennings 1967). The northwest boundary and parts of the western boundary are drainage divides (Metzger 1973; Jennings 1967). The valley is drained by McCoy Wash to the Colorado River. Average annual precipitation ranges to 6 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater in the basin is found in alluvial deposits of Quaternary age. Such alluvium generally consists of lenticular beds of sand, gravel, silt, and clay, except near the mountains where it consists principally of coarse-grained angular rock detritus (DWR 1961, 1979).

Restrictive Structures

No known barriers inhibit groundwater flow (DWR 1979).

Recharge Areas

Likely, recharge of the basin is chiefly from percolation of runoff from surrounding mountains. Percolation of precipitation to the valley floor and subsurface inflow may be additional sources of recharge (DWR 1979).

Groundwater Level Trends

Groundwater movement is southeasterly to Palo Verde Valley (DWR 1954,1979). Hydrographs show no significant increase or decrease in water levels from 1980 through 1981.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated at 6,840,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge in the basin is estimated at about 800 af/yr (DWR 1975). Recharge by underflow from Chuckwalla Valley is estimated to be 400 af/yr (DWR 1979).

Groundwater Quality

Characterization. DWR (1979) reports TDS content of shallow groundwater in the basin ranges from 730 to 3,100 mg/L; however, water from one deep well in the southwest portion of the basin had a TDS content of 4,500 mg/L (Metzger 1973). Analyses of water from 11 public supply wells in the basin show TDS content ranges from 590 to 1,790 mg/L and averages approximately 1,089 mg/L. Groundwater is calcium-sodium chloride or calcium-sodium sulfate in character.

Impairments. Arsenic, selenium, fluoride, chloride, boron, sulfate, and TDS concentrations are high (DWR 1975).

Water Quality in Public Supply Wells

Constituent Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
Inorganics – Primary	11	1
Radiological	10	0
Nitrates	11	0
Pesticides	11	0
VOCs and SVOCs	11	0
Inorganics – Secondary	11	9

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: – to 2,750 gal/min	Average: 1,650 gal/min (DWR 1975)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	20
	Miscellaneous water quality	
Department of Health Services and cooperators	Title 22 water quality	13

Basin Management

Groundwater management:

Water agencies

Public

Private

References Cited

California Department of Water Resources (DWR). 1954. *Ground Water Occurrence and Quality, Colorado River Basin Region*. Water Quality Investigations Report No. 4.

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_____. 1979. *Sources of Powerplant Cooling Water in the Desert Area of Southern California- Reconnaissance Study*. Bulletin 91-24. 55 p.

Jennings, C. W. 1967. *Geologic Map of California, Salton Sea Sheet*. Single Map Sheet, Scale 1:250,000.

Metzger, D. G., and others. 1973. *Geohydrology of the Parker-Blythe-Cibola Area, Arizona and California*. U.S. Geological Survey Professional Paper 486-G.

Additional References

Metzger, D. G. 1965. A Miocene (?) Aquifer in the Parker-Blythe-Cibola Area, Arizona and California. U.S. Geological Survey Professional Paper 525-C.

Errata

Changes made to the basin description will be noted here.